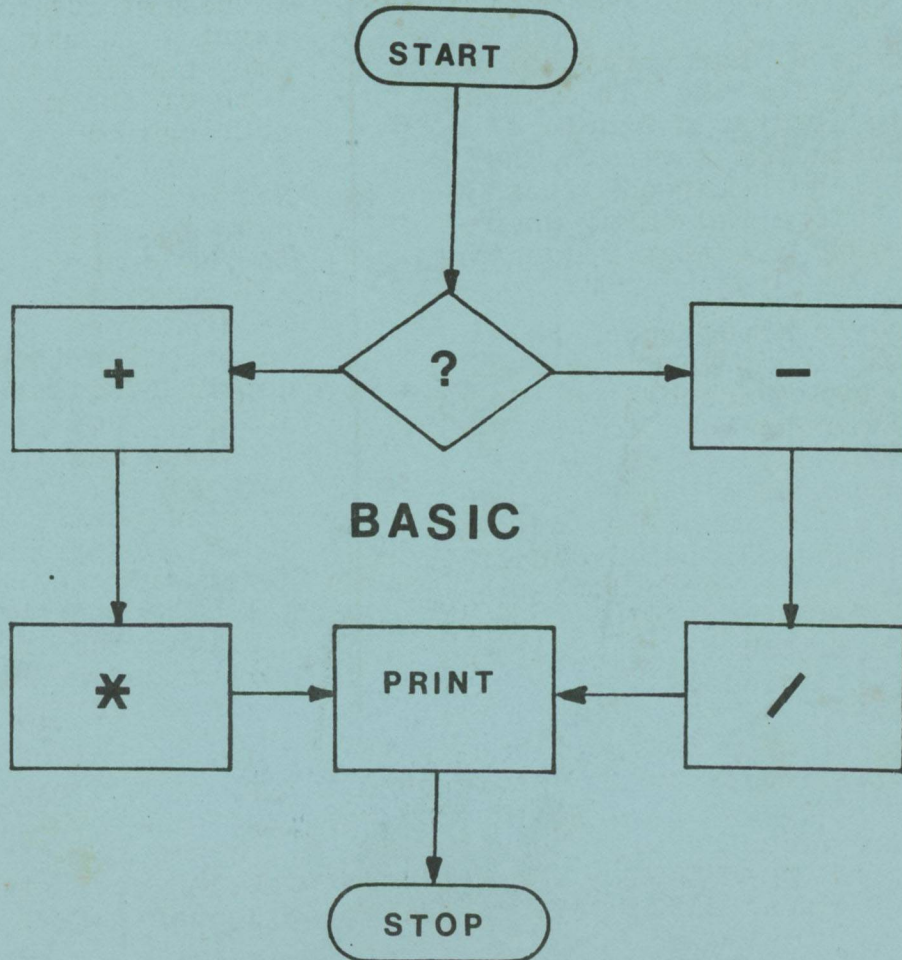


THE PAPER

POST OFFICE BOX 43 AUDUBON PENNSYLVANIA 19407
[215] 631-9052



SUBSCRIPTION, ADVERTISING, & MISCELLANEOUS INFORMATION

THE PAPER is published ten times per year and mailed to subscribers on the last day of each month except July and December. Single copy price is \$2.00, subscription price is \$15.00. Outside USA and Canada, add \$10.00 for air-mail postage if desired. One subscription includes all ten issues of one volume. A subscription does not carry over from one volume to another. Renewal period is from November through January, and the first issue of each volume is published in February.

Application to mail at second-class postage rates is pending in Norristown, PA, 19403. POSTMASTER: Please send address changes to THE PAPER, P.O. BOX 43, AUDUBON, PA, 19407

THE PAPER is an ARESCO publication, edited by Terry L Laudereau. For further information, contact EDITOR, THE PAPER, P.O. Box 43, Audubon, PA, 19407.

Manufacturers of hardware, software, and paperware for the PET are encouraged to send us a sample of their products for review. The product will be returned after 30 days, but before 120 days, when accompanied by a letter requesting return.

PET is a registered trademark of Commodore Business Machines Inc. THE PAPER is not associated in any way with Commodore and is not responsible for any action or inaction on Commodore's part. Commodore is not responsible for any opinion or material published in THE PAPER. Any information supplied to PAPER personnel by Commodore is credited to the company, not to any individual.

Subscribers wishing to submit software for consideration for inclusion in The Software Shelf should send a copy of the program and appropriate documentation to the Software Editor, c/o THE PAPER. Programs not accepted will be returned. Programs accepted will be copyrighted by ARESCO. A sample software contract provided upon receipt of an SASE. 20% royalties paid quarterly.

Please send payment (cash, check, money order in US funds; BAC, VISA, MC okay) with all subscription and tape orders and advertising copy. We have no facilities for billing or COD delivery. Dealer rates and procedures are available upon request to DEALER SERVICES, THE PAPER, P.O. Box 43, Audubon, PA, 19407.

Advertising rates are:

$\frac{1}{4}$ page - - \$25.00
 $\frac{1}{2}$ page - - \$45.00
full page - - \$85.00

Please send camera-ready copies in the exact page size of your ad. We can reduce your copy by up to 50%, but it may delay publication of your ad until the next issue. No more than four (4) full pages of advertising will be carried in any one issue. Copy should reach us by the 10th of the month in which publication is desired.

Readers are encouraged to submit articles of interest to PET owners. Any material submitted will be considered free of copyright restrictions and will be copyrighted under the name ARESCO. Non-profit organizations may reprint any part of THE PAPER without express permission, provided appropriate credit is given with the reprint. All other persons or organizations should contact the editor before reprinting PAPER material.

EDITOR'S COMMENTS

It's time to start thinking about renewing your subscriptions, friends. This is issue #8 - we have only two more issues left in Volume 1 (November and January). The first issue of Volume two will be printed in January and distributed on February first and will be dated FEBRUARY - so we'll finally get caught up with the dates.

However - due to the financial hassles, we will not publish a "Volume II" unless we have at least a thousand subscribers. If you send in your check for renewal, we won't cash it until we have that 1000th person on our books - and if we don't have that many by the time we have to go to press, we'll simply return your checks, uncashed. We currently have three - that's right - three - Volume 2 subscriptions. Those checks have been cashed because they were included in an order for a volume 1 subscription. If we decide not to publish a volume 2, we will issue checks to those three people, in refund.

When you send your renewal check (if you send BAC/VISA/MC, we won't charge your account until the appropriate number of people have renewed), be sure to note ON THE CHECK that it's for the volume 2 subscription - we're still receiving a lot of orders for volume 1, and I wouldn't want to send you a second sub to Vol 1 if you are ordering Vol 2.

You may be interested in knowing that we sell and/or exchange very few of our Flea Market tapes. We're considering omitting the Flea Market catalog from each even-numbered issue of Volume 2. Some of you have suggested that we list the Software Shelf programs in even numbered months and the Flea Market offerings in odd-numbered months. Any comments?

Finally, here's our secret for duplicatable tapes: We have the tape heads on our PETs aligned so the heads are perfectly perpendicular to the tapes. If you have a 'scope, you can align your tape heads the same way. We can read almost anybody's tapes (we've only had trouble with one company's tapes - and because the problem was obviously tape-head alignment, we'll un-align our tape heads to load the programs and evaluate them. A review will be forthcoming.) If you don't have a 'scope, it's difficult to line up the tape heads properly. If you are known at a local TV repair shop, radio repair shop, or computer store, the technicians will probably align the tape heads for you at a minimal cost. We've been thinking for months about how to describe the process for those of you without a 'scope, but can't come up with anything useful. Perhaps one of our readers can help????

You may have noticed that in many issues of THE PAPER there are missing characters - all the characters that don't appear on a standard typewriter. I was sure I had inserted all the special characters before issue #7 went to press (and that's another story!) but they didn't appear in the finished product. WHY? I asked the printer. He assured me it was all my fault - I had used blue ball-point ink to make the insertions - and blue ink doesn't copy well. I knew that! I have no excuses or alibis (but if you can think of a good one for me, let me know --) for the problem. I can only put it down to being dumb.

However ... the problem above is a perfect lead-in for the next topic: changing our "standard" symbols for PET's cursor and graphic keys. Len Lindsay, from the PET GAZETTE sent in the article from People's Computers (Jan/Feb, 1978). I quote the article here:

"To help make PET listings more readable, we've decided to indicate special stuff inside square brackets, using commas to separate items. Sometimes a number precedes an item to tell how many times it should be repeated. We use HOME, CLR, RVS, OFF, and INST as shown on PET keys. Sometimes SPACE is used to show where a space should be typed. A single character indicates that the graphic shown as the shifted character should be used. Examples are provided in Figure 1.

"Finally, you may have noticed colons at the beginnings of some program lines. Colons indent lines inside FOR loops to help show the limits of the loop.

<u>Listing says</u>	<u>You type</u>	<u>Screen shows</u>	<u>What happens</u>
PRINT(CLR,Q)	PRINT"CLR key shift-Q"	PRINT"black heart on white, white dot on black"	Cursor goes home (upper left) and screen clears. White dot printed in home position.
PRINT"(HOME,3 DOWN,S)"	PRINT"HOME key cursor down 3 times, shift-S"	PRINT"black S on white, 3 black Qs on white, white heart on black"	Cursor goes home then down 3 times (i.e, to row 4), and prints a white heart.

I tried this means of doing things, and it's a bit cumbersome. However, I find that I can include REM statements before I make a listing so that the cursor and graphic characters (which look like undecipherable junk to a printer) can be interpreted by a person trying to read the listing. It may be a while before I get all the listings in our library converted, but all future listings will contain these "symbols" since it's easy to put them in while typing in a program. For example, the PETANIMATION program in issue #6, page 17:

```
10 FOR I=1TO30:PRINT" &2" (which is what the code looks like on
                           my printer)
      converts to
```

```
10 FOR I=1TO39:PRINT" &2":REM PRINT (SPACE,Q,LEFT)
20 FOR I=1TO39:PRINT" 22&2":REM PRINT (SPACE,2 LEFT,Q,LEFT)
```

(the code bounces a ball back and forth across the screen)
I decided to keep the original print statements in the program so they are executable and so that the program I list will be the same as the program on the tape. The REM statement will (or can) be removed if there's a memory space problem, before the code is run - but it will still be available in the list.

The important thing to remember is that a single character, such as the Q in the above example, indicates a graphic character obtained by pressing the shift key before (and while) pressing the indicated key. If an S appears in a listing, for example, it means "shift-S", and if an M appears in the listing, it means "shift-M".

Thanks to all of you, we have grown "big" enough to have more work than I can handle by myself - so Rick Simpson (formerly KIM product manager at MOS Technology and currently VIP product manager at RCA) has agreed to work with me full time. As you no doubt are aware, Rick has been helping out on a part-time basis for several months - doing software reviews, a few hardware articles (for example, the "Teach Your PET To Bark" item in issue #1), and generally taking care of software evaluation and answering some of the more technical questions you've asked.

Beginning November 1st, Rick will be with us full time - and, with his help, we hope to grow from "miniscule" to "tiny" in very short order!

PET GROOMERS FROM ECLECTIC

ALREADY HAVE A PRINTER? CONNECT YOUR PET TO IT.....

Printer interface provides IEEE 488 BUSS to RS232 serial output to any buffered printer. The circuit board mounts inside the PET and connects to the printer via standard 25 pin connector.

INTERFACE KIT.....\$58.80
ASSEMBLED.....\$83.80
Plus handling and shipping

Dealer prices and information available upon request.

KEEP YOUR PET ACTIVE

Currently available are two game tapes and a financial analysis and amortization tape (Cassette 7).

CASSETTE 2: Slots, Blackjack, Poker, and Craps

CASSETTE 3: Golf, Bowling, Hamurabi, Robots, and Checkers

More professionally developed Software available soon from ECLECTIC.

CASSETTE 1: Startrek, Enterprise, Klingonn and L E M

CASSETTE 4: Horserace, Biorhythm, Rotation, Brick, and Masterbagles

CASSETTE 5: Concentration, Yahtze, Hangman, Ricochet, and Clock

ANY TAPE.....\$14.95
Plus .75 per tape handling and shipping

KEEP YOUR PET COOL WITH A FAN

This kit comes complete with a quiet, high quality fan, replacement back panel, and mounting hardware. The fan kit greatly reduces the internal temperature, improving reliability and slowing component aging. This unit can be assembled and installed in minutes.

FAN KIT\$29.95
Plus handling and shipping

BRING YOUR PET UP IN THIS WORLD WITH A PLACE OF ITS OWN.....

Give your PET a high quality, sturdy table. Two sizes available:

REGULAR- 24"deep x 32" long x 26" high

LARGE - 24" deep x 54" long x 26" high

Large unit provides area for Printer and/or working.

REGULAR TABLE\$66.00
LARGE TABLE\$95.00
Plus handling and shipping
(Assembly required)

ECLECTIC CORP.
2830 WALNUT HILL LN
DALLAS, TX. 75229

NAME _____
ADDRESS _____
CITY _____
STATE, ZIP _____
MASTER CHARGE _____ BANK # _____
VISA _____
CARD NUMBER _____
EXPIRATION DATE _____
SIGNATURE _____

_____ INTERFACE KIT _____ ASSEMBLE
_____ CASSETTE 2 _____ CASSETTE
_____ CASSETTE 7 _____ FAN KIT
_____ SMALL TABLE _____ LARGE TAE

WHEN AVAILABLE
_____ CASSETTE 1 _____ CASSETTE
_____ CASSETTE 5

PET PARADE

Terry - Here's a revised version of the DELETE procedure I sent for issue #7:

- 1) By supplying an increment of \emptyset , use RENUMBER to give all lines to be deleted the same line number. Use the number of the first line of the highest numbered contiguous block of lines to be deleted.

WARNING: DO NOT RENUMBER ANY LINE TO A NUMBER SMALLER THAN A LINE LEFT UNCHANGED.

- 2) Execute directly: ?" **C** ":FOR I = 1 TO 24:?(new line number): NEXT I: ?" **H** "
- 3) Type the new line number over "READY." Hit the HOME key.
- 4) Hit "RETURN" up to 24 times, once for each line to be deleted. If more than 24 are needed, hit "HOME" after the 24th "RETURN" and hit up to 24 more "RETURN"s. Repeat "HOME" and sets of 24 "RETURN"s as required.

Step 2 can be made more efficient by adding a new line to RENUMBER:

```
5998 $\emptyset$  ?" C ":FOR I=1TO24:?L:NEXT:  
?" H ":END
```

Then step 2 is:

- 2') Execute directly: GOTO 5998 \emptyset

Sincerely, John F. Garst

Terry - The primary accumulator B \emptyset -B5 really has a 5-byte mantissa: B1-B4 and BF. BF is kept as a guard for chained computations and probably rounded into the 4-byte mantissa only when storage lack into user memory is wanted. Thus it is possible for the sequences of code:

a) $X=A+B+C$

b) $Y=A+B:X=Y+C$

c) $Y=B+C:X=A+C$

etc., to give different results. Probably you have to go to more complicated expressions to see any difference. Sincerely, Charlie McCarthy

Terry - I have a faulty RAM and since a 2114 is nearly 1/3 the price of a 6550, I would like to use the 2114 as a replacement. But there are different types of 2114:

4K x 1 Static 450nsec.
4K x 1 Static 300nsec.
1K x 4 Static 450nsec. low power
1K x 4 Static 300nsec. low power

Which do I use? I would like to see articles on hardware replacements with their disadvantages and advantages (as in price, etc.) and which company has the hard to find parts (other than Commodore). Thank you - Robert Kratzer

Bob - If you are replacing RAM, you can use the 450 nsec 2114 - you don't need the low power. However, you can only replace 2114's - the 6550's are pin-incompatible. To my knowledge, nobody but MOS TECHNOLOGY (a Commodore owned company) makes 6550's. - Rick

Terry - I am using my PET to run RTTY on 20 meters. I wonder if any other Hams are using PETs with their Ham Radios? - Richard Merrell

Richard - I can't decipher your "number". Is it W \emptyset 8DAD or W \emptyset 8DAO or W \emptyset 8DAO or what? I'm sure other Hams would like to contact you. - Terry

PET PARADE

Dear Terry,

Perhaps these comments may be of interest to some of your readers. They were inspired (?) by issue 6.

With respect to your comments on Russell Martin's interface to a second cassette recorder: First, since I understand that recent documentation on the PET has not included data on external connections, it should be noted that the A thru F designations in the article refer to the bottom side of the six-position port for the second cassette. Starting at the edge closest to the built-in recorder, A is ground, B is +5volts, C is motor, D is Read, E is Write, and F is Sense. Obviously, then, of the two diagrams in the article, the one connected to the D line is used in reading tapes from the second cassette. The other diagram is intended to control the motor of the second recorder. Using a Sony TC110A and Martin's circuit, I was never able to read in a program from the second cassette. I was, however, ^{able} to use Martin's suggestion that the E (Write) line be connected directly to the AUX (or LINE IN, in my case) input to the recorder. Rather than go to the trouble of wiring in a relay to control the motor on the second unit, I simply wired an SPST switch between A (ground) and F (sense) positions, which I use in conjunction with the pushbuttons on the recorder. Second, and very important, is the fact that programs saved (or files written) on the second (non-Commodore) recorder may be loaded (or read) from the built-in unit with no problem.

Issue 5 (Jul-Aug) of the PET User Notes (a bargain at \$5/year) has some follow-up information and alternate circuits for reading from the second recorder. Apparently I wasn't the only one who had problems.

I tried Glenn Schwartz's scheme for earphone output without success. There are inconsistencies between the hex and decimal forms of the program you printed on page 11. In line 2, the decimal 255 seems preferable to the hex 01 (make the hex FF). In the line labelled READ, the hex 03 is probably right ... change the decimal 2 to 3. In the next-to-last line, the JMP command in hex is 4C rather than 43 (which may be why I couldn't get it to work ... I was using one of our hex loaders, and hadn't noticed that error yet!)*

The problems in Renumber and Unlist mentioned by Jim Parr in his letter (also page 11) are neatly solved (plug!) in our Micro-SET I.

Unfortunately, I fear that the copy sent to you for review last month contains a glitch resulting from the final edit process.

PET PARADE

If you have any problems with CREATE TAPE or ADD FROM TAPE, please let us know and we'll send an error-free copy. The package, which also provides multiple-line DELETE and a handy PROGRAM INFO function (number of lines, first and last line numbers, and absolute location of end-of-program), has a more flexible RENUMBER facility, allowing the user to designate which lines are to be renumbered and what the new numbers will be. It also allows programs or subroutines saved separately to be combined on a single program. With instructions, the Micro-SET I sells for \$15 (check or money order).

Concerning the EOF/EOT problem ... I've tried (ST)AND64 and (ST)=64 with consistently inconsistent results. Louis Barnett's embedded character (I use a long string of them) seems to offer the best reliability so far. I emphize with all those who have been trying to develop good file programs.

Dennis Kosack's letter raises a question: why use multiple saves to clear a tape? I simply press RECORD and PLAY without any commands to the PET, which in effect erases the entire tape (since no signal goes to the record head). Am I overlooking something?

A kudo to Charles McCarthy! His efforts at documentation are the beginnings of what I had hoped to receive with my PET. The PET arrived early last December. I'm still waiting for the documentation.

Keep up the good work! - Roy Busdiecker

* After making the change, I do get a short, variable length click in the earphone....and when I use his routine to drive your issue #1 beeper, it causes a variable length beep. Will report further progress if I have any!

Thanks, Roy - We try to proof-read every article and letter, but sometimes we get in a bit of a hurry and things slip by. If it weren't for people like you (and all our subscribers and contributors) we couldn't stay in business! You're all appreciated! - Terry

Terry - Please tell those of your readers who have purchased my STAT I tape that an error has been detected in two lines of code. Change the value 100 in line 2500 to the variable "Q", so it reads, in part, "FOR I=1TOQ". Then change line 2019 by removing

the value "2500 in the ON__GOSUB statement, and replacing it with:

```
2019 ON R GOSUB 2200,2300,  
2400,5220
```

That should fix the problem.
- Rick Simpson

PET PARADE

Dear Terry,

The designation of 2d cassette recorder terminals A through F, as given in my letter of October 1, is backwards, due to a somewhat ambiguous description in the preliminary user manual. Terminal A is farthest from the built-in cassette, rather than closest as I had said.

The good news is that the new Commodore booklet "PET Communication with the Outside World" presents a clear picture of not only the connector designations, but also of many details we've all been looking for.

That booklet, along with a tape containing the Machine Language Monitor, a booklet describing its operation, and an Appendix/Errata to that booklet, arrived several days ago.

The bad news, in the letter accompanying the package, is not only that "production of the promised PET printer has been delayed", but that Commodore is asking that folks not order the printer until a production date is announced. That makes it sound serious!

-Roy Busdiecker

Thanks, Roy. We don't have space in this issue to print your review of the Commodore material, but it will be in #9. - Terry

PET® SOFTWARE

HIGH UTILITY SOFTWARE FOR YOUR PET®

PEM — CALCULATOR @ \$ 7.95

The PEM - CALCULATOR provides a wide range of math and financial functions including:

- NI
- Trigonometric
- Logarithms
- Anti-logs
- Inverse functions
- Hyperbolic functions
- Interest
- Periodic payments
- Present value
- Annuity
- Sinking fund

The PEM - CALCULATOR is a reverse Polish stack operated calculator written in BASIC for the PET®'s 6502 micro-processor and requires 12K of memory.

MICRO-SET® I (Basic Utilities) @ \$ 14.95

SET®, which stands for Software Engineering Tool, allows the user to manipulate other programs in a very convenient fashion. MICRO-SET® I provides the following functions in a manner designed and tested for ease of use:

CREATE TAPE — makes an ASCII file copy of program, subroutine or collection of lines for addition to another program.

ADD FROM TAPE — uses an ASCII file tape made by Create Tape functions to add previously stored lines to the program presently in the computer.

DELETE — removes from your program all lines numbered between limits you specify.

PROGRAM INFO — reports the number of lines in your program, first and last line numbers, and the number of bytes free.

RENUMBER — change line numbers in a range you specify to new numbers starting with a number you designate, increasing at a step size of your choice. Provides information for manually changing targets of GOTO, GOSUB and IF --- THEN statements.

NOTE: At least 8K of user memory required; for maximum satisfaction 12K or 16K

INTERNATIONAL TECHNICAL SYSTEMS, INC.
P. O. BOX 264, WOODBRIDGE, VIRGINIA 22194

WE ACCEPT VISA® AND MASTER CHARGE®
CUSTOMER SERVICES, RICHMOND, VIRGINIA (804) 262-9709

PET PARADE

Terry - I recently received #6 and tried Glenn Schwartz's music program. I had to debug it first - was there a typo? In Glenn's version, the line just before the RTS will jump to hex address 033E. I didn't try to see what would happen if I let my PET execute this instruction...it tends to sulk when it doesn't like something. I think you will find this code works better. It was assembled using Personal Software's BASIC Assembler. They have a pretty good product, once you trim the fat out of it. - Garry J Bullard

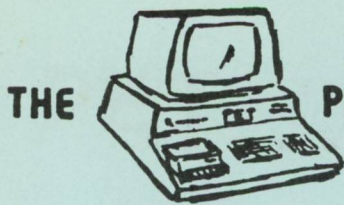
Terry - I noticed an unusual thing about my PET. I tried to use lower case letters in a REM statement, and I can't do it! Instead, I get BASIC keywords in their place when I LIST. Graphics work the same way. Is this a shorthand for BASIC? Why does it do this? - Dave Conley

Dave - The lower-case and graphic characters are used by the PET as "tokens" for the BASIC keywords, so that the keywords don't use a lot of memory space. It's a useful thing to know. - Terry

.....
Gary Bullard's version of Glenn Schwartz's music program:

```
TONE = $033A :POKE 826,X WHERE X=TONE (0-255)
DIR = $E843 :DIRECTION CELL FOR I/O PORT
PORT = $E841 :USER I/O PORT
* = $033B :START PROGRAM AT 033B (HEX), 827 (DEC)

033B A0 00 INIT LDY #00
033D A9 01 LDA #01
033F 8D 43 E8 STA DIR :SET DIRECTION TO OUTPUT
0342 EE 41 E8 START INC PORT :BEGIN LOOP; TOGGLE LSD OF USER PORT
0345 AD 3A 03 READ LDA TONE
0348 49 FF EOR #$FF
034A 4A LSR A
034B AA TAX
034C CA DELAY DEX
034D 10 FD BPL DELAY
034F 88 DEY
0350 F0 03 BEQ FINI
0352 4C 42 03 JMP START
0355 60 FINI RTS :RETURN TO BASIC PROGRAM
.END
```

FLEA MARKET EXCHANGE

See Issues #1 through #7 for descriptions of the following programs and for ordering information:

- | | |
|--------------|-------------------|
| SNAKE | RENUMBER & UNLIST |
| KLIDISKOP | HANGMAN-G |
| DOGFIGHT | DIGITAL CLOCK |
| EMPEROR | PRIME NUMBER |
| SPADES | MORSE TUTOR |
| SPIRAL | VACATION BUDGET |
| RND CHAR | ADDITION GAME |
| CODES | OTHELLO FOR ONE |
| GRADES | PUBDOMDIS |
| HEX/DEC | OTHELLO FOR TWO |
| ROAD RALLY | STATES & CAPITOLS |
| SPIRAL | SLOT MACHINE |
| DARTS | KYBD UTILITY |
| HIMONDIS | TYPEWRITER-5 |
| LOMONDIS | USEFUL ROUTINES |
| MATH QUIZ | SPACE CONVENTION |
| BIOCYCLE | MAGIC SQUARE |
| NOTE | AMORTIZATION |
| CORE DUMP | TIC-TAC-TOE |
| CLOCK-12 | TOMMY TERMITE |
| NUMBER TRAP | DAY OF THE WEEK |
| TI\$ TUTOR | DAY/DATE/TIME |
| MAZE DEMO | CHECKERBOARD |
| FLEA PAK I | FLEA PAK II |
| FLEA PAK III | FLEA PAK IV |
| FLEA PAK V | FLEA PAK VI |
| ODD MAN | ARRAYS |

* * * * *

SOFTWARE SHELF SALES

See Issues #1 through #7 for descriptions of the following programs and for ordering information:

- | | |
|----------------|-----------------|
| BLACKJACK | \$10.00 |
| BLOCKADE | \$10.00 |
| CHASE | \$10.00 |
| DATA EDIT | \$10.00 |
| DATA RETRIEVAL | \$10.00 |
| SPACE FIGHT | \$10.00 |
| STAT I | \$20.00 |
| STAT II * | \$20.00 |
| HOSTAGE | \$ 7.95 |
| STARTREK 2001 | \$10.00 |
| AIR-SEA WAR | \$ 7.95 |
| MICROMAZE | \$ 7.95 |
| XMON | \$15.00 |
| TUTOR | \$19.95 |
| MANUAL | \$29.95 |
| TUTOR PKG | \$39.95 |
| | (Manual & tape) |
| CMC/WPP | \$29.50 |

* See review of STAT II in this issue.

BENCH CONNECTION

- | | |
|---------------------------|----------|
| CMC ADA1200 | \$169.00 |
| (RS232-IEEE-488 adapter) | |
| (Include \$5.00 shipping) | |

ARESCO ANNOUNCES

Subscription orders are now being accepted for THE RAINBOW - a newsletter dedicated to owners of the APPLE II personal computer and for THE SOURCE - a newsletter dedicated to the Exidy Sorcerer. First issues will be published in December, 1978. Subscriptions include 10 issues of Volume 1. Price for each subscription is \$15. Overseas add \$10 for airmail postage if desired. No billing or COD; BAC/VISA/MC okay. No checks will be cashed until publication of the first issues. Orders are also being accepted for our 6K Assembler/Text Editor for the APPLE II; cost is \$29.95 (cassette & manual). Send orders to THE RAINBOW or to THE SOURCE, P.O. BOX 43, AUDUBON, PA, 19407. (ARESCO also publishes THE VIPER for users of the RCA VIP.)

INTRO TO BASIC

Many of you have written to tell me that the keywords listed in the magazines bear little or no resemblance to the BASIC words you have become accustomed to using with your PET. This means that you have trouble getting the published game to work - and there's no reference material available to tell you how to convert the "alien" BASIC into PET BASIC. This month we will discuss some of the most frequently used "alien" BASIC keywords and show you the PET BASIC routines that can be used to do the same jobs.

MAT READ A reads data from a DATA statement into an array. In PET BASIC, you must use a FOR/NEXT loop to do the same thing:

```
100 FOR I = 1 TO 100
110 READ A(I)
120 NEXT I
```

(this assumes that the array named A has been previously DIM-ensioned to hold 100 elements. The "alien" BASIC makes the same assumption)

MAT PRINT A prints all the data from an array onto the screen or printer. Again, you must use a FOR/NEXT loop to do this on the PET:

```
100 FOR I = 1 TO 100
110 PRINT A(I)
120 NEXT I
```

MAX(X,Y) returns the larger value (X or Y). This is often a string function as well as a numeric function, and you might see it in this form: MAX(X\$,Y\$). To get the same effect on the PET:

```
100 IF X > Y THEN K=X
110 IF X > Y THEN K=Y
```

MIN(X,Y) returns the smaller value (X or Y). This, too, is often a string function as well as a numeric one. Use the same routine as you would use for MAX, except that if X is larger than Y, then K=Y instead of X; and if Y is larger than X, then K=X instead of Y.

Remember that nothing is accomplished with MAX, MIN, or the two PET BASIC routines if X=Y!

DISPLAY(L,P)X\$ displays X\$ on line L, beginning in print position P, on the screen or on the printer. The PET

uses programmed curser control to select the line and print position. If the "alien" BASIC statement reads DISPLAY(4,5), you would enter a single PRINT statement which moves the curser down 4 lines and over 4 positions. Not 5 positions - you want X\$ to begin in position 5:

```
100 PRINT" (D) (D) (D) (D) (R) (R) (R) (R)";X$
```

I haven't personally encountered any other "alien" BASIC keywords which obstructed my progress. If you know of others, please let me know and I'll show you the PET BASIC routine (if there is one) which will get you around the problem.

Let's look at some of the PET's functions - arithmetic functions. We've already examined the string functions, and there are only two more function types to look at: arithmetic and screen functions. (PEEK and SYS and USR are each in a class by themselves, and each will take an entire INTRO column to discuss!)

Functions return values, and arithmetic functions return only numeric values. Before we discuss any of the "built-in" functions available, it might be a good idea to learn how to define your own functions.

To define a function, you use the form DEF FN_()=_____. DEF means "DEFine" a function. "FN" means "function" and the blank immediately following FN is the name of the function you are defining. Any single letter of the alphabet will do as a function name, which means you can only use 26 functions in any one program. The parenthesis usually contain a variable name; again, a letter of the alphabet. And the definition, or value of the variable, is on the "line" to the right of the "=" sign. Here's an example: X=X*X (essentially X squared) is a function with which you are familiar. You don't have to use a lot of memory space repeating that statement if you need it over and over in your program; you can define a function and then just use the function. In this example, you won't save much space, but if you have a long, complicated arithmetic expression, you will.

```
DEF FNA(X)=X*X
```

Then, later in your program, use B=FN(5) if you want the value of 5 squared. Try it:

```
100 DEFFNA(X)=X*X
110 PRINT FNA(5)
120 B=FNA(10):?B
```

PET should display 25 and 100 when you run the program. It is useful to use functions like this when you have to generate a lot of values using the same arithmetic.

Note that while it is permitted to use any letter of the alphabet for the function name, and any letter of the alphabet for the variable name, it is important that the letter in parenthesis and the expression to the right of the "=" sign contain the same letter name for the variable. In other words, don't use DEF FNA(X)=Y*Y or DEF FNA(A)=B*C. And, by the way - if you later use a statement which calls the function, such as T=FNA(25), and you get an error message naming that statement as the culprit, don't believe it! The chances are just as great that the error will be in the DEF statement.

Another interesting function is ABS. ABS(X) returns the absolute value of the number in parenthesis. You can use any number or numeric expression which evaluates to a number, and get back only the magnitude of the number - not the sign. For example, if you have a number like -35, ABS(-35) returns 35. If you are using a variable which contains a value like -35, ABS will still only give you the "positive" value back.

If you aren't familiar with the transcendental functions, you'll probably never use SIN, COS, TAN, ATAN. If you do want to use these functions, remember that PET assumes that the argument is in radians, not in degrees, except for ATAN.

... you to examine the contents of PET's memory. (rather than a hexadecimal) number between ... location to examine is 630 - it tells ... occur when you've tried to read a ... then verify it. As soon as it's ... PRINT PEEK(630). It should be 0 - ... your program "verified" okay, even ... on the screen.

... you'd like to see in this column? ... keywords and functions - would you ... out the PET's cursor functions? Or ... like WAIT, CMD,USR, or SYS? Let ... help you.



Get More From Your PET, Subscribe Now to

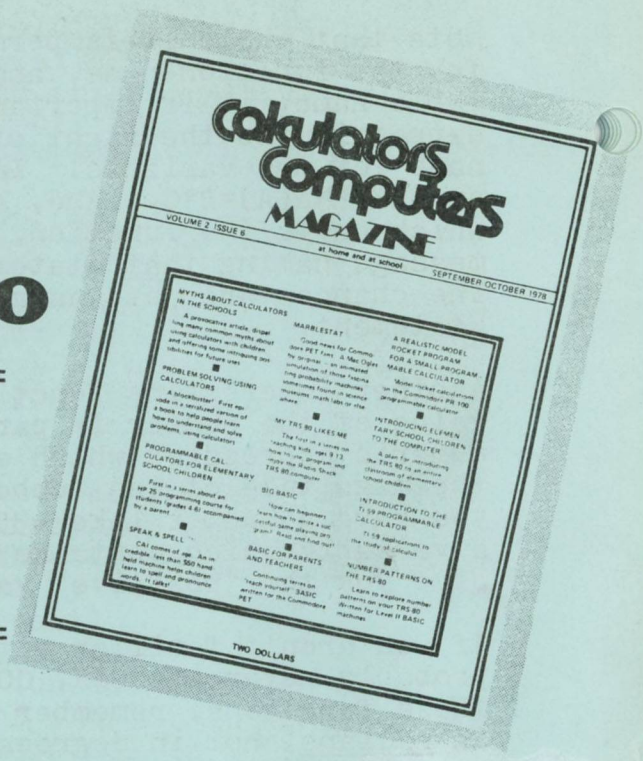
Calculators Computers

We know that some magazines tend to ignore the computer novice. Some magazines assume you are a trained computer expert or a veteran "hacker"! Well, we're different...

At **CALCULATORS/COMPUTERS Magazine** we know these things and understand your needs. We like to call ourselves a how-to-do-it magazine for people like you—beginners and intermediates who want to learn how to use, program and enjoy all kinds of calculators and computers. We especially want to help you get more of everything out of your Commodore PET.

Not only will **CALCULATORS/COMPUTERS Magazine** help you learn how to program in BASIC on your PET, we'll continually provide you with:

- games and simulations - highly graphic games written by Mac Oglesby for the PET
- introductory and intermediate programming on the PET
- BASIC for Parents and Teachers - ongoing series beginning with the February 78 issue (Vol. 2, Issue 2)
- continuing lists of program sources
- home uses for your computer
- ways to share your computing know-how with family and friends



Calculators
Computers

Please

dymax, p.o. box 310n, menlo park, ca 94025



SELECTRIC BASED PRINTER

Completely refurbished DURA MACH 10 Selectric based word processor machine. Consists of 8 level paper tape reader, 8 level paper tape punch, selectric typewriter with all interconnecting solenoids, relays, and power supply to form a stand alone word processor. Easily converted to work on a parallel port of any computer (requires 8 bits + 2 handshake lines). Selectric printer has 11 inch platten and will use any correspondence print ball (12 pitch element). Complete package consists of DURA MACH 10 + copy of operating instructions, typewriter repair manual, book on electrical operation, schematics to include those for interfacing the printer to a computer and a box of 1" paper tape. MASTER CHARGE/VISA \$429.00 plus shipping (Please specify UPS Brown/Blue or other). Type elements -Prestige Elite -\$18 each Less 5% for Cash/Check/Money Order Virginia residents add 4% sales tax.

• TYPEWRITERS UNLIMITED, 1408 IDAHO ST, WOODBRIDGE, VA. 22191 (703) 491-4495

PET® COMPUTER COVER

PROTECT YOUR PET® FROM DUST AND SPILLS

- Heavy cloth-backed *white vinyl
- Custom contoured fit (slips on and off easily)
- Rugged heavy duty stitching
- Corded seams
- TRS-80® keyboard cover also available

* Other colors available on special order basis

Price PET® cover: \$16.95, plus \$1.25 shipping

Price TRS-80® keyboard cover: \$ 9.95, plus \$.75 shipping

(Virginia residents add 4% sales tax)

NOTE: Volume discounts available

INTERNATIONAL TECHNICAL SYSTEMS, INC.
P. O. BOX 264, WOODBRIDGE, VIRGINIA 22194

WE ACCEPT VISA® AND MASTER CHARGE®

CUSTOMER SERVICES, RICHMOND, VIRGINIA (804) 262-9709

PEM - 8K

— UTILITY, CONVENIENCE, VALUE —

PEM - 8K, THE PET® MEMORY EXPANSION UNIT THAT SIMPLY PLUGS IN

- 8K additional static RAM
- Plugs into PET®'s external memory expansion port
- Built in heavy duty regulated power supply
- Completely assembled, wired, burned-in, tested
- Attractive cabinet complements PET®'s appearance
- Illustrated user's manual

Price: \$297.00, plus \$6.00* shipping and handling

(Virginia residents add 4% sales tax)

* Foreign and air shipments require additional charges

INTERNATIONAL TECHNICAL SYSTEMS, INC.
P. O. BOX 264, WOODBRIDGE, VIRGINIA 22194

WE ACCEPT VISA® AND MASTER CHARGE®

CUSTOMER SERVICES, RICHMOND, VIRGINIA (804) 262-9709

REVIEW - STAT II

by Harold W Harrower

STAT II is a fairly comprehensive package made up of seven separate statistical programs which are detailed on page 20 of issue #3 of THE PAPER. The titles of the programs are mnemonic: DESCSTATS (1) provides descriptive statistics; PROBF (2) gives probability values; ANOVA (3,4,5) refers to analysis of variance; SLR (6,7) indicates simple linear regression.

The entire package is on one side of a C-20 cassette. Each program takes a minute or less to load. Utilization of memory varies from about 1000 to 2500 bytes. Programs were readily isolated and easily copied. In actual use, it is convenient to have them separated on smaller cassettes. All programs ran well except for #2, PEOBF, which consistently failed because of a "?SYNTAX ERROR IN 2". Changing line 2 to read "K=0.56" permitted it to run.

As claimed, the statistical routines provide a wide variety of tests which indeed cover the needs of many users. The programs are interactive, but do not eliminate all confusion. A familiarity with the lingo is required for proper input of figures and interpretation of results. A little documentation would be very helpful. Particularly enlightening would be a listing of the results of the various programs, spelling out the initialized terms employed. A few references would also be welcome. A handy source of information is "Statistics Made Simple", by H. T. Hayslett, Jr., published by Doubleday at \$1.95.

Critical evaluation of the package depends upon one's background and premises. I cannot judge it on the basis of statistical methodology or mathematical propriety, but only as a user of standard tests to gauge the significance of sets of laboratory or clinical data. In this respect, STAT II is satisfactory to good. Usually I use an Olivetti Programma 101 - vintage about 1965 - for this purpose.

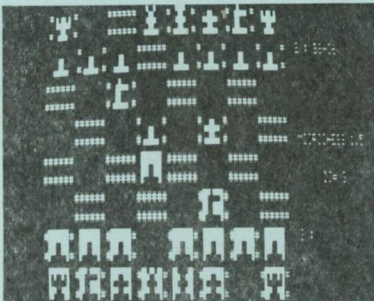
The biggest defect is the lack of a printout - not so much because results have to be copied, but because input figures cannot be checked for error. This, of course, is a hardware, not a software (program) problem. I ran a number of samples for which I had printouts, and the results were identical - or so close as to make no difference. The bonus was having PET on my own desk at home.

I found a number of disadvantages (in comparison to the Olivetti). There is no way to display data on the screen after entry or to store data for later use in the same or in a different program. Error correction of data values is not permitted, and this is especially disturbing when one makes a mistake toward the end of a session.

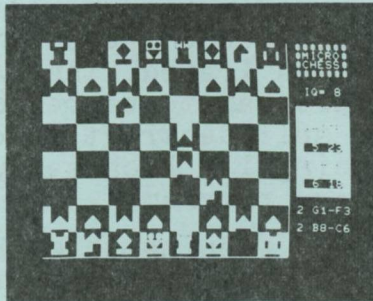
In the XYSLR program, the user has to count the pairs of X and Y entered, rather than having the program do this. In this program, one gets the regression equation for Y based on X. It would be most convenient to be able to get also the equation for X based on Y - to do so, the same data have to be re-entered. An additional need is for Student t and p values. It would be nice, too, to have the usual descriptive statistics for the same data without having to run DESCSTATS.

As I see the situation, STAT II may be about as good a package as is feasible with the present limitations of PET. Some current improvements may be possible along the lines suggested above. I hope the author will provide a more sophisticated and versatile package when a printer and expanded memory are available for the PET.

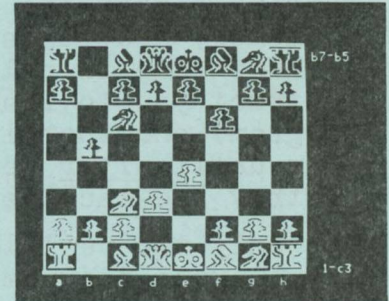
TRS-80



PET



APPLE



PLAY CHESS WITH YOUR COMPUTER!

MICROCHESS is the culmination of two years of chessplaying program development by **Peter Jennings**, author of the famous 1K byte chess program for the KIM-1. MICROCHESS 2.0 for 8K PETs and 16K APPLES, in 6502 machine language, offers 8 levels of play to suit everyone from the beginner learning chess to the serious player. It examines positions as many as 6 moves ahead, and includes a chess clock for tournament play. MICROCHESS 1.5 for **BRIDGE CHALLENGER** by **George Duisman** for 8K PETs, Level II 16K TRS-80s, and 16K APPLES: You and the dummy play 4 person Contract Bridge against the computer. The program will deal hands at random or according to your criterion for high card points. You can review tricks, swap sides or replay hands when the cards are known. No longer do you need 4 people to play! **\$14.95**
ORDERS: Check, money order or VISA/Master Charge accepted; programs and cassettes guaranteed. If you have questions, please call us at **617-783-0694**. If you know what you want and have your VISA/MC card ready, you can **DIAL TOLL FREE 1-800-325-6400**

4K TRS-80s, in Z-80 machine language, offers 3 levels of play (both Level I and Level II versions are included and can be loaded on any TRS-80 without TBUG). MICROCHESS checks every move for legality and displays the current position on a graphic chessboard. You can play White or Black, set up and play from special board positions, or even watch the computer play against itself! Available now at a special introductory price of only **\$19.95**
STIMULATING SIMULATIONS by **Dr. C.W. Engel** for 8K PETs, 4K Level I and II TRS-80s, and APPLES with Applesoft II: Ten original simulation games such as Forest Fire, Lost Treasure, Gone Fishing and Diamond Thief, progressing from elementary to quite complex with most suitable for schoolchildren. Includes a 64 page book giving flowcharts, listings and suggested modifications . . **\$14.95** (24 hours, 7 days; in Missouri, dial 1-800-342-6600). Or you can mail your order to the address below. Personal Software™ products are now **AVAILABLE NATIONWIDE FROM COMPUTER STORES**. Look for the Personal Software™ display in your local store!

P.O. Box 136-S10 **Personal Software™** Cambridge, MA 02138

RESEQUENCE

by Gary A Maier
The Software Shoppe
Dept A108
P.O. Box 271
Berwyn, IL 60402

How many times have you run out of line numbers while trying to develop a new program? It can be tedious to adjust all the GOTOs, GOSUBs, and IF/THEN targets when you insert a new line number! We've seen a variety of renumbering programs - all written in BASIC - and none of them do the whole job. We still have to change all the GOTO, GOSUB, and IF/THEN targets. It's impossible for a BASIC program to handle the required memory shuffling without confusing the PET and sending it off to sulk somewhere in its "undecipherable operating system code"*

To overcome the problem, the Software Shoppe has developed a relocatable machine language resequencer. There's a short BASIC program at the end of it, in which you can specify the starting line number and the desired increment between line numbers. When the BASIC program is run, it finds the "top" of memory and loads the resequence program there. After the machine code is relocated and loaded, the BASIC program will instruct you to load the program to be resequenced (your own program) and then it will self-destruct. Do not run your program until after resequencing it, because running it will destroy the machine language program.

The only two restrictions to running this RESEQUENCE program are 1) your program must not contain any errors. If, for example, your program has a GOTO 100 statement in it, and there is no line 100, PET will go into orbit. Then the RESEQUENCE program will have to be reloaded (after you turn off and reset PET) and the whole process begun again. 2) after typing in the listing, be sure to save the program before running it - if you typed it in correctly, it will self-destruct after it is run.

If you'd prefer, you can get the tape for the RESEQUENCE program from the FLEA MARKET. If you're interested in additional software developed by the Software Shoppe, contact Gary Maier at the above address.

(Editor's note: We are printing the code exactly as it was sent to us - no retyping. The print is rather small, so if you have trouble reading it, contact us (or contact The Software Shoppe) for a copy of the listing. Be sure to send an SASE. A copy of the listing will accompany the tape if you'd rather not type in all the code.)

*See issue #5, pages 10 & 11


```

** SPECIAL CHARACTER LEGEND ** @=CLEAR SCREEN    #=CURSOR DOWN
100 DATA162,0,189,0,0,157,-1,3,232,224,8,208,245,169,4,133,0,169,4,133,1,230
110 DATA0,208,2,230,1,160,0,177,0,208,8,200,192,3,208,247,76,-1,657,160,0,177
120 DATA0,208,16,24,169,4,101,0,133,0,169,0,101,1,133,1,76,-1,44,177,0,201
130 DATA137,240,51,201,141,240,47,201,167,208,200,165,0,133,2,165,1,133,3,230
140 DATA2,208,2,230,3,177,2,201,32,240,244,201,0,240,19,201,44,240,15,201,58
150 DATA240,11,201,48,144,164,201,58,176,160,76,-1,108,169,0,141,-1,11,141
160 DATA-1,12,165,0,133,2,165,1,133,3,230,2,208,2,230,3,177,2,201,32,240,244
170 DATA201,0,240,67,201,44,240,63,201,58,240,59,162,9,173,-1,11,141,-1,13
180 DATA173,-1,12,141,-1,14,24,173,-1,13,109,-1,11,141,-1,11,173,-1,14,109
190 DATA-1,12,141,-1,12,202,208,234,177,2,56,233,48,24,109,-1,11,141,-1,11
200 DATA169,0,109,-1,12,141,-1,12,76,-1,159,173,-1,0,141,-1,15,173,-1,1,141
210 DATA-1,16,169,0,133,4,169,4,133,5,169,3,24,101,4,133,4,169,0,101,5,133
220 DATA5,177,4,205,-1,11,208,8,200,177,4,205,-1,12,240,46,24,173,-1,2,109
230 DATA-1,15,141,-1,15,169,0,109,-1,16,141,-1,16,169,2,24,101,4,133,4,169
240 DATA0,101,5,133,5,230,4,208,2,230,5,160,0,177,4,208,244,76,-1,262,230,0
250 DATA208,2,230,1,56,165,2,229,0,141,-1,17,162,5,169,39,205,-1,16,144,48
260 DATA208,7,169,15,205,-1,15,144,39,202,169,3,205,-1,16,144,31,208,7,169
270 DATA231,205,-1,15,144,22,202,173,-1,16,208,16,169,99,205,-1,15,144,9,202
280 DATA169,9,205,-1,15,144,1,202,142,-1,18,173,-1,17,205,-1,18,208,3,76,-1
290 DATA572,169,0,133,4,169,4,133,5,160,0,177,4,208,8,200,192,3,208,247,76
300 DATA-1,452,230,4,208,238,230,5,76,-1,429,24,169,2,101,4,133,4,169,0,101
310 DATA5,133,5,173,-1,18,205,-1,17,144,51,56,173,-1,18,237,-1,17,170,165,4
320 DATA133,6,165,5,133,7,160,0,177,6,142,-1,19,172,-1,19,145,6,165,6,208,2
330 DATA198,7,198,6,165,6,197,0,208,230,165,7,197,1,208,224,76,-1,572,173,-1
340 DATA17,56,237,-1,18,170,165,0,133,6,165,1,133,7,230,6,208,2,230,7,138,168
350 DATA177,6,160,0,145,6,230,6,208,2,230,7,165,6,197,4,208,236,165,7,197,5
360 DATA208,230,169,0,141,-1,20,169,16,141,-1,21,169,39,141,-1,22,32,-1,807
370 DATA169,232,141,-1,21,169,3,141,-1,22,32,-1,807,169,0,141,-1,22,169,100
380 DATA141,-1,21,32,-1,807,169,10,141,-1,21,32,-1,807,169,1,141,-1,21,141
390 DATA-1,20,32,-1,807,160,0,177,0,201,44,208,3,76,-1,143,165,0,208,2,198
400 DATA1,198,0,76,-1,44,169,0,133,0,169,4,133,1,173,-1,0,141,-1,15,173,-1
410 DATA1,141,-1,16,24,165,0,105,3,133,4,169,0,101,1,133,5,160,0,173,-1,15
420 DATA145,4,200,173,-1,16,145,4,24,165,4,105,2,133,4,169,0,101,5,133,5,230
430 DATA4,208,2,230,5,160,0,177,4,208,244,230,4,208,2,230,5,160,1,165,4,145
440 DATA0,165,5,200,145,0,160,0,177,4,208,19,200,177,4,208,14,162,0,189,-1
450 DATA3,157,0,0,232,224,8,208,245,96,165,4,208,2,198,5,198,4,165,4,133,0
460 DATA165,5,133,1,173,-1,15,24,109,-1,2,141,-1,15,169,0,109,-1,16,141,-1
470 DATA16,76,-1,677,162,48,56,173,-1,15,237,-1,21,141,-1,15,173,-1,16,237
480 DATA-1,22,141,-1,16,144,4,232,76,-1,809,24,173,-1,21,109,-1,15,141,-1,15
490 DATA173,-1,22,109,-1,16,141,-1,16,224,48,208,6,173,-1,20,208,1,96,169,1
500 DATA141,-1,20,160,0,138,145,0,230,0,208,2,230,1,96
510 PRINT"@ THE SOFTWARE SHOPPE RESEQUENCER#"
520 INPUT"INPUT STARTING LINE NUMBER";SL
530 IF SL<0 GOTO 520
540 INPUT"INPUT DESIRED INCREMENT";IN
550 IF IN<1 GOTO 540
560 IF IN>255 THEN PRINT"MAXIMUM INCREMENT = 255":GOTO 540
570 T=PEEK(134)+256*PEEK(135)-1:S=T-879:E=S+23
580 FOR J = E TO T
590 READ P:IF P>=0 THEN POKEJ,P:GOTO 620
600 READ P:P=P+S:P2=INT(P/256):P1=P-256*P2
610 POKEJ,P1:J=J+1:POKEJ,P2
620 NEXTJ
630 P2=INT(SL/256):P1=SL-256*P2
640 POKES,P1:POKES+1,P2:POKES+2,IN
650 PRINT"#LOAD THE PROGRAM TO BE RESEQUENCED. "
660 PRINT"#FRE(0) MUST BE > 380 AFTER LOADING OR"
670 PRINT"RESEQUENCE WILL NOT WORK. "
680 PRINT"#TYPE SYS("E") TO"
690 PRINT"RESEQUENCE YOUR PROGRAM. "
700 NEW

```


PET USERS GROUPS

Glenn Schwartz, 807 Avon, Philadelphia PA 19116, is willing to help start a PET User Group in his area.

ACGNJ meets 4th Fridays. Call John Loofbourrow at (201) 233-7068.

SPHINX - 314 10th Avenue, Oakland, CA. Call (415) 451-6364 for information.

The Human Society - United PET Users meets 1st Thurs. at 1929 Northport Dr. #6, Madison, WI, 53704. Call Len Lindsay at (608) 249 2666 between 8 AM and 1:00

PET Users in the Twin Cities area of MN can call John FUNG at (612) 376-5465.

Peter Oakes, 2235 Lakeshore Drive, Muskegon MI 49441, is willing to help form a PET User Group in his area. Write for details.

Sacramento PET Workshop, P.O. Box 28314, Sacramento, CA.

PET Users, 2001 Bryan Tower, Suite 3800, Dallas TX 75201.

PUG meets 1st Weds. in the Mercury Room at 310 Showers Drive, Mountain View, CA.

BAMUG - 1450 53rd Street, in Emeryville CA. Call (415) 523-7396.

N. Orange County Computer Club has a PET subgroup. Contact David Smith, 3030 Topaz #A, in Fullerton, CA 92631 for info.

Northeastern PET Group, 49X Ninth Row, Ashington, Northumberland, England, NE63 8JY

Users in N VA should contact Bob Karpen, 2054 Eakins Ct, Reston, VA 22091 - (703) 860-9116

Vancouver PET Users Group Box 35353 Station E, Vancouver, BC, Canada. Call Rick Leon at home (604) 734-2060 or work (604) 324-0505

Lincoln Computer Club, at Lincoln School, 750 E. Yosemite, Manteca, CA 95336, is a group of junior-high students. Contact John Fultz, **advisor**.

PET NET for hams - meets on the air at 1500 UCT (10:00 AM CDT) on 14.240 MHz each Sunday morning. Listen in!

For those who can't make 14.24 MHz PET NET, there's another which meets at 9 AM (PDT) on 7.205 MHz on Friday mornings. Listen for W6HJE or K7UXF.

Independent PET Group, 22 Firs Walk, Tewin Wood, Welwyn, Herts., UK. Contact Norman Fox.

Capital District PET Users (Albany, Schenectady, and Troy NY area) call Ben Green at (518) 370-1820.

Central IL PET owners can contact Rick Goldsmith, 2730 Townway Rd #E-54, in Danville, IL 61832.

St. Louis PET Users call Mary Perkinson at (314) 432-5225.

PET Users of Japan, c/o Soichiro Moridaira, Shinsen Park Himu, Rm #201, 4-13 Shinsencho, Shibuya-ku, Tokyo, Japan, 150.

Chicago PET People contact Shelly Wernikoff, 2731 N. Milwaukee Ave. Chicago, IL 60647 or call 252-7573. After 7 PM call 475-2028

Andrew Chmiel, 805 Grand Ave
Apt 11, Pullman, WA 99163 is
interested in joining a User
Group. Anyone out there??

Conrad G. Walton recently
moved to 1600 SW Pwy #504 in
College Station, TX 77840,
and is looking for PET people.

Hope Dohnal just moved to 1430
Long Island Drive, Eugene, OR,
97401, and is looking for a
PET User group there.

David Liem, 14361 Warwick St.
Detroit MI 48223, is trying
to get a group going. "Any
help would be appreciated!"

Jason Zinserling, c/o O.I.T.
Reshall, Klamath Falls, OR
97601 would like to get a PET
group going in the area.

Larry Williams has an active
group going in San Antonio
TX - write to him at P.O. Box
652, San Antonio, TX 78293.

Stanley Hueske, Box 22,
Plymouth, NB 68424, is
interested in joining/
forming a User Group.

Gary J Bullard, 1722 S
Carson #1502, Tulsa
Oklahoma 74119 is looking
for a PET User Group.

Joseph J Hanus, 206 Elm-
wood Circle, Seminole,
FL 33543 is interested in
forming a group including
all levels of PET expertise.
Call (813) 297-5486.

Donald Hemenway is very
interested in forming a
local PET group in Oxon
Hill, MD. Call him at
(301) 248-8593, or write
to 7805 Klovstad Dr. Zip
is 20022.

Any PET owners in Paris,
France can contact Al
Glock, c/o Embassy DAO,
APO NY 09777.

HELP!

1. When using a DATA statement and a READ statement, and you get a syntax error, it will be in the READ part. If you can't find an error in your READ statement, look at the DATA.
2. If you get an error in a statement which calls a user-defined function look for the error in the DEF FN statement.
3. If you get a ?NEXT WITHOUT FOR or RETURN WITHOUT GOSUB error, check to be sure you didn't jump into the middle of your FOR/NEXT loop from somewhere else in your program. (or into the middle of the subroutine. Another possible source of the problem may be that your code "fell through" the intended end of your program into the subroutine. Fix that with an END statement in a line just preceding the first line of the subroutine.

SOME PET ROUTINES

Unearthed by J. Butterfield

C2AC-C2D9 peeks at the stack for an active FOR loop
C2AD-C31C 'opens up' a space in Basic for insertion of a new line.
C31D-C329 tests for stack-too-deep and aborts if found.
C32A-C356
C357-C388 sends a canned error message from C190 area, then drops into:
C389-C391 Signals 'ready'
C394-C3A9 gets a line of input, analyzes it, executes it
C3AC-C42E handles a new line of Basic from keyboard; deletes old line, etc.
C430-C460 corrects the chaining between Basic lines after insert/delete
C462-C476 receives a line from the keyboard into the Basic buffer
C479-C48C gets each character from keyboard
C48D-C521 looks up the keywords in an input lines and changes to "tokens"
C522-C550 searches for the location of a Basic line from number in 8, 9
C551-C599 implements NEW command - clears everything
C59A-C5A7 sets the Basic pointer to start-of-program
C5A8-C647 performs LIST command
C649-C68F executes a FOR statement
C692-C6B4 continues to build FOR vectors
C6B5-C6EF reads and executes the next Basic statement, finds next line, etc.
C6F2-C70A executes the Basic Command as a subroutine
C70D-C71B performs RESTORE
C71C-C742 handles STOP, END, and BREAK procedures.
C745-C75E performs CONT
C75F-C76D
C770-C772 performs CLR
C775-C77D performs RUN
C780-C79A performs GOSUB
C79D-C7C9 performs GOTO
C7CA-C7FD performs RETURN
C7FE-C81E scans for start of next Basic Line
C820-C840 performs IF
C843-C862 performs ON
C863-C89A gets a fixed-point number from Basic and stores in 8, 9
C89D-C91B performs LET
C91C-C97E check numeric digit/move string pointer
C97F-C982 performs PRINT#
C985-C996 performs CMD
C999-CA24 performs PRINT
CA27-CA41 prints string from address in Y, A
CA44-CA76 prints a character
CA77-CA9E handles bad input data
CA9F-CAC5 performs GET
CAC6-CADF performs INPUT#
CAEO-CB14 performs INPUT

CB17-CB21 prompts and receives the input
 CB24-CC11 performs READ
 CC12-CC35 canned messages: EXTRA IGNORED; REDO FROM START
 CC36-CC8F performs NEXT
 CC92-CCB5 checks Basic format, data type, flags TYPE MISMATCH
 CCB8-CD38 inputs and evaluates any expression (numeric or string)
 CD3A-CD9C pushes a partially-evaluated argument to the stack
 CD9D-CDB9 evaluates a numeric, variable, or pi, or identifies other symbol
 CDBC-CDC0 value of pi in floating binary

PAYROLL —

Especially designed with the small businessman in mind. Utilizing cassettes can record data for any number of employees (10 employees per cassette). Computes tax information and updates totals for quarterly and yearly reports. Employees can be salaried or hourly and pay periods can be either weekly, bi-weekly, semi-monthly or monthly.

..... \$30.00

BUSINESS GRAPHIC PACK 1 —

Business Graphic Pack 1 is a simple program to use, but professional in output. The graph includes title, labeling of axis, dual graphic ability, whether the data is in Mill's, 100's or 1000's, and an optional x-axis = date and labeling of the x-axis with month and year. Entry is as easy as typing the title, # of entries, the X,Y value (Jan: 15, 1978 would be entered as 115.78), entering if the x-axis = date, if the user wants crosshatching and then graphing. The program also includes Nth order and Geometric regression to give the user a formula for his set of data (if possible).

..... \$25.00

BUSINESS ANALYSIS —

Business Analysis allows management to have available to them information for financial planning decisions. Up to 4 years of balance sheet and income statement information can be entered with resultant analysis in the areas of liquidity, leverage, profitability and activity. The ratios generated for each year are the: current ratio, acid test, debt-nw, profit-nw, profit margin, sales-rec, sales-inv, sales-wc, with a brief explanation of each. The growth analysis gives the yearly growth in 5 areas and the average growth in 5 areas. Future growth analysis projects figures for the next year.

..... \$30.00

Sawyer Software is quickly becoming recognized as a leader in quality business and personal software for the PET user. If you are the software author of a quality business or personal program (not games, please), contact us about our royalty program.



ACCOUNTING PACK 1 —

Accounting Pack 1 is a general ledger package designed for small businesses and homeowners. It contains check journal, general ledger, income statement (current ytd, previous month ytd and current month), balance sheet (current month and previous month). There are 15 commands and 6 reports that can be generated. The system uses an unique single-entry bookkeeping system and can hold up to 50 entries per period (month, week, day) and up to 40 different accounts. Each period's data is kept on convenient cassette tapes. Utilizing the general ledger command the user can view the general ledger entries for the month from Assets to Expenses or stop in midstream and view one particular account. Or the user can type in an account name such as "Advertising" and view the entries for that month. The Account Pack 1 program includes a checkbook reconciliation routine which aids in finding checkbook errors. Sawyer Software plans updates to Accounting Pack 1 to enable the user to use a printer, floppy disk or more memory. Accounting Pack 1 is well documented, with a 14 page User's manual. Several businessmen are using Accounting Pack 1 and have written to us their satisfaction with the program along with their purchase of other software.

..... \$25.00

CHECKBOOK RECONCILIATION —

Designed for ease of use and to find those troublesome checkbook errors, this program balances your checkbook and bank statement from month to month. Records data on cassette for next month's balancing - saving re-entry of figures.

..... \$25.00

SCHEDULE PLANNER —

Schedule Planner can be used by secretaries, receptionists, housewives or anyone wanting to plan and have at their fingertips their own schedule. Data entered is date,time, priority and description. The commands available allow the schedule to be shown for a particular day, request of time, or the "viewing" of appointments as they come up. Schedule Planner #2 is for one or more individuals. Utilizing Schedule Planner #2 a customer can call in asking when his appointment with Dr. Jones is and in seconds the receptionist can give the date and time. Or Dr. Jones can find out his schedule for the day. With the viewing command, an appointment at 12:00 or a particular day will display on the screen at that time allowing receptionists and secretaries to validate appointments.

..... \$15.00

Other programs for your 8K PET™ —

Calculator \$10.00
 Chessboard \$15.00
 Financial Pack 1 \$15.00
 Schedule Planner #2 \$20.00

All Programs include documentation, are in BASIC and on cassette.

SAWYER SOFTWARE
 828 Lewis, Rt. #3
 Dexter, Mo. 63841
 314-624-7611

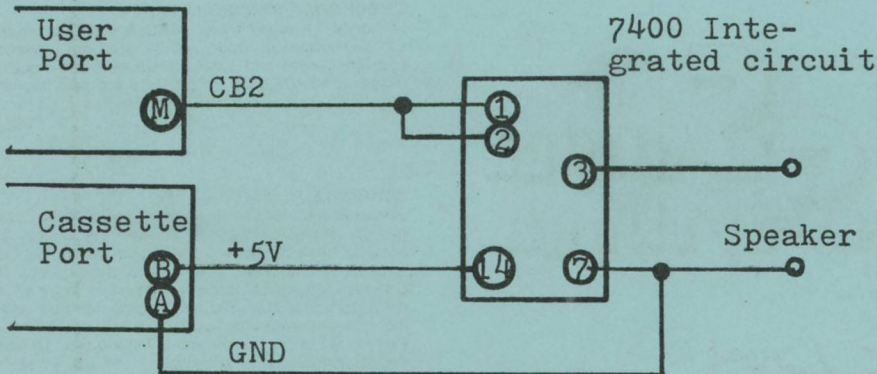
By Don Ketchum

A very simple way to play tunes on your PET is with the simple circuit and the BASIC program (both shown below). The middle row of keys (ASDFGHJKL:) play ten notes from B through D, and the 1, 2, and 3 keys pick the octave you want. Press and release the octave key and the PET will stay in that octave while you press the other keys to play a tune. To change to another octave, press and release another 1, 2, or 3 key.

WARNING: After running this program, if you wish to use the tape recorder to LOAD or SAVE, either turn the computer off and then on again, or else POKE 59467,0.

```

110 DIM A(12): FOR N = 0 TO 12: READ A(N): NEXT N
120 POKE 59466,51: POKE 59467,16
130 B = PEEK(515)-36
140 IF B = -10 THEN POKE 59466,15: GOTO 130
150 IF B = -18 THEN POKE 59466,51: GOTO 130
160 IF B = -11 THEN POKE 59466,85: GOTO 130
170 IF B = 219 THEN POKE 59464,0: GOTO 130
180 IF B < 0 OR B > 12 GOTO 130
190 POKE 59464, A(B): GOTO 130
200 DATA 104,124,157,188,237,0,0,0,117,140,177,211,251
    
```



⋮ * ⋮ * ⋮ * ⋮ * ⋮ * ⋮ * ⋮ * ⋮ * ⋮ * ⋮ * ⋮ *

ATTENTION: Len Lindsay of the PET GAZETTE has suggested that THE PAPER utilize the PET symbols created by People's Computers magazine. Len will be sending us a copy of these symbols so you can look them over and decide whether you want to adopt them for use in listings provided by THE PAPER. We should be able to print the new symbols in the next issue.

COMMENTS



A subscription to THE PAPER includes all ten issues of Volume 1. Send \$15.00 (cash, check, money order in US funds) or charge to your BAC/VISA/MC credit card. Overseas add \$10.00 for airmail postage if desired. Sorry, no C.O.D. or credit available. Mail to THE PAPER P.O. Box 43, Audubon, PA 19407.

NAME _____

ADDRESS _____
(please give street address for UPS shipments)

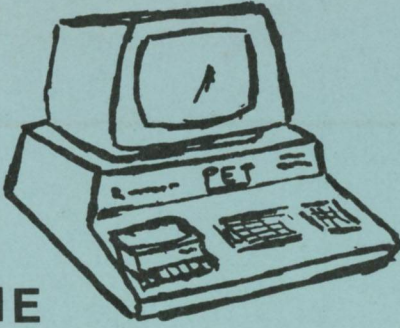
CITY, STATE, ZIP CODE _____

MC/VISA/BAC# _____ EXP DATE _____

MC INTERBANK # _____ REQUIRED CREDIT CARD SIGNATURE BELOW

DATE _____

SECOND CLASS POSTAGE
PENDING AT
NORRISTOWN PA 19403



THE PAPER
PO BOX 43 AUDUBON PA 19407

TO:

